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# An international survey examining the impact of the COVID-19 pandemic on telehealth use among mental health professionals

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## ABSTRACT

**Background:** COVID-19 has profoundly affected the work of mental health professionals with many transitioning to telehealth to comply with public health measures. This large international study examined the impact of the pandemic on mental health clinicians' telehealth use.

**Methods:** This survey study was conducted with mental health professionals, primarily psychiatrists and psychologists, registered with WHO's Global Clinical Practice Network (GCPN). 1206 clinicians from 100 countries completed the telehealth section of the online survey in one of six languages between June 4 and July 7, 2020. Participants were asked about their use, training (i.e., aspects of telehealth addressed), perceptions, and concerns.

**Outcomes:** Since the pandemic onset, 1092 (90.5%) clinicians reported to have started or increased their telehealth services. Telephone and videoconferencing were the most common modalities. 592 (49.1%) participants indicated that they had not received any training. Clinicians with no training or training that only addressed a

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single aspect of telehealth practice were more likely to perceive their services as somewhat ineffective than those with training that addressed two or more aspects. Most clinicians indicated positive perceptions of effectiveness and patient satisfaction. Quality of care compared to in-person services and technical issues were the most common concerns. Findings varied by WHO region, country income level, and profession.

*Interpretation:* Findings suggest a global practice change with providers perceiving telehealth as a viable option for mental health care. Increasing local training opportunities and efforts to address clinical and technological concerns is important for meeting ongoing demands.

The COVID-19 pandemic has profoundly affected the work of mental health professionals globally. Many have had to abruptly transition to providing telehealth services to comply with public health measures. According to a World Health Organization (WHO) survey, the pandemic disrupted mental health, neurological, and substance use services in 93% of the 130 countries that responded (World Health Organization, 2020). The most severely affected were community-based services, prevention and promotion mental health programs as well as services for vulnerable individuals. Moreover, a third of countries reported disruptions to essential and emergency interventions. Adoption of telehealth was the most frequent approach to overcoming disruptions reported by 70% of countries (World Health Organization, 2020).

While access to mental health services has become more difficult, the effects of the COVID-19 pandemic and public health measures have led to increased demand for services among health care professionals (Cherepanov, 2020; Lu et al., 2020) and the general population (Li et al., 2020; Wang et al., 2020; Xiang et al., 2020). Findings suggest elevated incidence of anxiety, depression, and insomnia (Qiu et al., 2020; Talevi et al., 2020) and exacerbation of symptoms in individuals with pre-existing mental disorders (Vindegard and Benros, 2020). Thus, governments and health care systems have had to restructure mental health services to maintain access under duress. For example, China implemented online mental health services (e.g., via WeChat and other social media platforms) as an emergency response to rising mental health concerns (Liu et al., 2020). The United States' (US) Centers for Disease Control reported a 154% increase in telehealth encounters at the start of the pandemic as compared to the same period in 2019 (Koonin, 2020). Several other regions report major transformations in management of services that underscore the role of telehealth technologies in coping with the mental health burden (Adepoju, 2020; de Girolamo et al., 2020). Professional regulatory bodies generated interim guidelines and researchers are compiling evidence-based telehealth recommendations (Smith et al., 2020) for clinicians. Although telehealth has contributed to continuity of care and offers a potential solution to increasing mental health care, it presents challenges to global clinicians including technology access and concerns about clinical effectiveness. There is a dearth of international data on the effects of COVID-19 measures on mental health professionals' telehealth practice including perceived barriers and facilitators for adoption.

Literature published prior to the pandemic about mental health care delivery via technology focused on national and regional adoption. Research indicates that, in general, psychologists and physicians accept and are interested in telehealth options (Connolly et al., 2020; Perle et al., 2013, 2014; Pierce et al., 2020a). However, US studies found that only roughly 25% of clinicians actually used telehealth in their practice (Perle et al., 2014; Pierce et al., 2020a). Identified barriers included hesitancy regarding efficacy compared to in-person services, ethical and legal issues (Perle et al., 2014), technical difficulties, challenges establishing rapport (Connolly et al., 2020; Cowan et al., 2019; Wagnild et al., 2006) and lack of available training (Perry et al., 2019). Existing organizational policies supporting telehealth use and training were found to be predictors of increased telehealth use (Pierce et al., 2020a). Acceptance of telehealth services also varied by disorder, with acceptance highest for anxiety and lowest for psychotic disorders (Perle et al., 2013). A systematic review found a rising trend in telehealth use for mental health services in low and middle-income countries

(Acharibasam and Wynn, 2018). However, readiness for adoption of telehealth varied by country with some facing infrastructural barriers, ranging from availability of stable electricity to limited bandwidth (e.g., Jefe-Bahloul, 2014).

The current study assesses the impact of the COVID-19 pandemic on mental health professionals' use of telehealth, and examines concerns, barriers, and facilitators to its implementation. WHO's Global Clinical Practice Network (GCPN) (Reed et al., 2015) is an international and multilingual network of almost 16000 mental health professionals, primarily psychiatrists and psychologists, representing all WHO regions, which provided an ideal opportunity for advancing our understanding of practice changes and concerns.

It is hypothesized that a majority of mental health professionals will have transitioned to telehealth (Pierce et al., 2020b; World Health Organization, 2020). Clinicians may also indicate clinical, technological, ethical and legal factors as areas of concern or barriers to telehealth use (Cowan et al., 2019; Perle et al., 2014) with training as a potential facilitator (Perry et al., 2019; Pierce et al., 2020a). However, telehealth use and factors related to its adoption are expected to differ between psychiatrists and psychologists due to differences in the nature of their work. Telehealth use and delivery is predicted to vary by WHO region and country income level.

## 1. Method

### 1.1. Participants

Participants were recruited from the GCPN. At the time of study implementation, there were 15546 registered members from 159 countries representing all WHO global regions. Members with a high level of fluency in one of the six study languages were eligible to participate in the survey.

The current study was part of a three-phase longitudinal internet-based survey conducted with GCPN members examining the impact of the COVID-19 pandemic on global mental health professionals and their practice across several domains including changes in work circumstances, occupational stressors and well-being, use of telehealth services for patient care, and expectations for future practice and recommendations. The first survey (Phase 1) was implemented between June 4 and July 7, 2020. In efforts to reduce survey fatigue and duration, not all consenting participants were asked to complete the telehealth section. Participants were presented with a series of questions pertaining to telehealth use only if they had indicated the following: a) "Yes" to having worked in the past two weeks, b) provided direct clinical services in the past two weeks, and c) used telehealth tools for either new or continuing patients. However, if participants indicated providing in-person services in an institution where medical care was being provided to patients presumed or confirmed to have COVID-19, they were directed to complete a survey about occupational stressors and well-being instead. Thus, the present study sample only included participants who were directed to complete the telehealth section as part of Phase I.

### 1.2. Procedures

An internet-based survey was administered using Qualtrics™ (Provo,

UT, USA) and conducted in Chinese, English, French, Japanese, Russian, and Spanish. Survey content was initially developed in English and translated by experts from the GCPN’s International Advisory Group and affiliated colleagues, with representation from several global regions and included members fluent in the other five languages, who assessed the accuracy of translations. Eligible GCPN members were sent an email invitation containing an individualized survey link where they were then asked to provide their consent to participate in the study. Reminder emails were sent at seven, fourteen and twenty-one days after the initial invitation to members who had not yet completed the survey. Data collection was closed a week after the final reminder, for a total data collection period of four weeks.

This study was approved by the Institutional Review Board at Columbia University/New York State Psychiatric Institute and the University of Ottawa.

1.3. Survey content

Participants responded to questions about how their use of telehealth for clinical care and supervision changed since the COVID-19 pandemic onset. Difficulty with starting or increasing telehealth services was assessed using a four-point Likert scale. Participants also indicated the types of telehealth tools they used during the past two weeks and if their institution had provided a secure platform.

Participants were then asked whether they had received training on technological, ethical and legal, and clinical aspects of telehealth service delivery or no training at all. Available guidelines have broadly outlined that knowledge and competence in these areas are essential for delivering evidence-based telehealth services (American Psychological Association, 2013; Luxton et al., 2016). Participants who indicated receiving telehealth training were asked to specify whether the training had prepared them adequately for their telehealth activities. Overall, perceived effectiveness of telehealth services was assessed using a four-point Likert scale as well as perceived effectiveness of telehealth services compared to in-person services for specific patient populations (see Fig. 1). Participants were then asked to indicate their concerns with providing telehealth services from a checklist. Finally, participants were asked about perceived patient satisfaction with telehealth services provided in the past two weeks.

1.4. Statistical analyses

Differences between participant responses across demographic variables were examined using  $\chi^2$  tests. Post-hoc pairwise comparisons with Bonferroni corrections were used to explore differences between WHO regions. A sequential logistic regression examined predictors of clinicians’ overall perceived effectiveness using telehealth, by first entering demographic variables (i.e., age, years of experience, country income level, gender, and profession) and then by adding received training (i.e., none, one, two, or three aspects of telehealth delivery). “Very effective”

was used as the reference group for all comparisons. Gender was considered a relevant demographic variable based on research suggesting that women likely bear an increased burden of care during the pandemic (Seedat and Rondon, 2021). This may impact female clinicians’ interest or need for telehealth provision and lead to gender differences for perceived effectiveness of telehealth. A binomial logistic regression was used to determine whether the aforementioned demographic variables along with breadth of telehealth training (one, two or three aspects) predicted clinician’s perceived preparedness for telehealth activities.

Role of the funding source

The funders of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report.

2. Results

2.1. Sample demographics

Of the 12632 GCPN members who were eligible and invited to participate in the larger study, 2563 (20.3%) agreed to participate in the survey and 2505 (97.7%) of those participants provided sufficient data for analysis (see Fig. 2). 1206 participants completed the telehealth section. The telehealth sample included mental health professionals from 100 countries with the highest number of participants from the United States (n = 141) and Japan (n = 103). The mean age of participants was 51.4 years (SD = 11.4), and mean years of experience was 20.7 years (SD = 10.4). Demographic information for telehealth participants is provided in Table 1.

2.2. Use of telehealth: practice change due to the COVID-19 pandemic

Overall, 90.5% of participants reported to have either started (43.1%) or increased (47.4%) their use of telehealth for clinical services since the COVID-19 pandemic onset. Similarly, 86.6% of participants who provide supervision of clinical services reported to have either started (43.8%) or increased (42.8%) their use of telehealth for supervision. Among clinicians who reported starting telehealth services, 37.1% found the transition somewhat easy and 33.8% found it somewhat difficult. 41.4% of participants who indicated increasing telehealth services found this change somewhat easy and 29.2% found it somewhat difficult.

Mental health professionals were more likely to indicate using telehealth tools for continuing patients (97.2%) than new patients (63.7%) ( $\chi^2(1) = 19.95, p < .001$ ). Nonetheless, 59.5% of clinicians reported offering in-person services to continuing patients and 49.3% to new patients. Use of telehealth modalities varied significantly across WHO regions for telephone  $\chi^2(7) = 28.14, p < .001$ ; videoconferencing  $\chi^2(7) = 216.17, p < .001$ ; chat or instant messaging  $\chi^2(7) = 112.91, p < .001$ ;

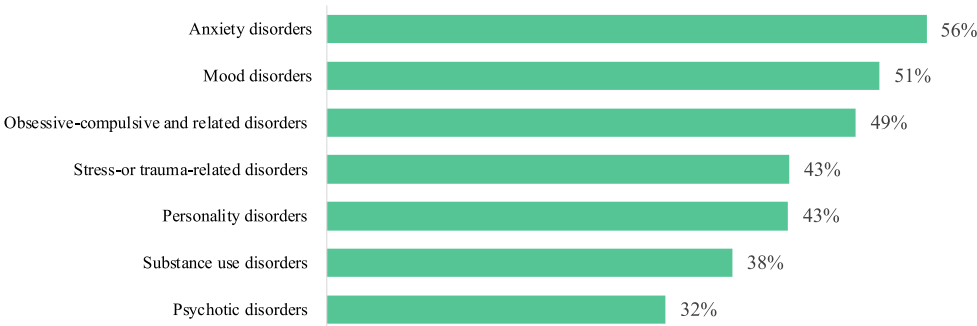


Fig. 1. Perceived effectiveness of telehealth indicated by percentage of clinicians who reported that the telehealth services they provided for specific patient groups were about the same as or more effective than in-person.

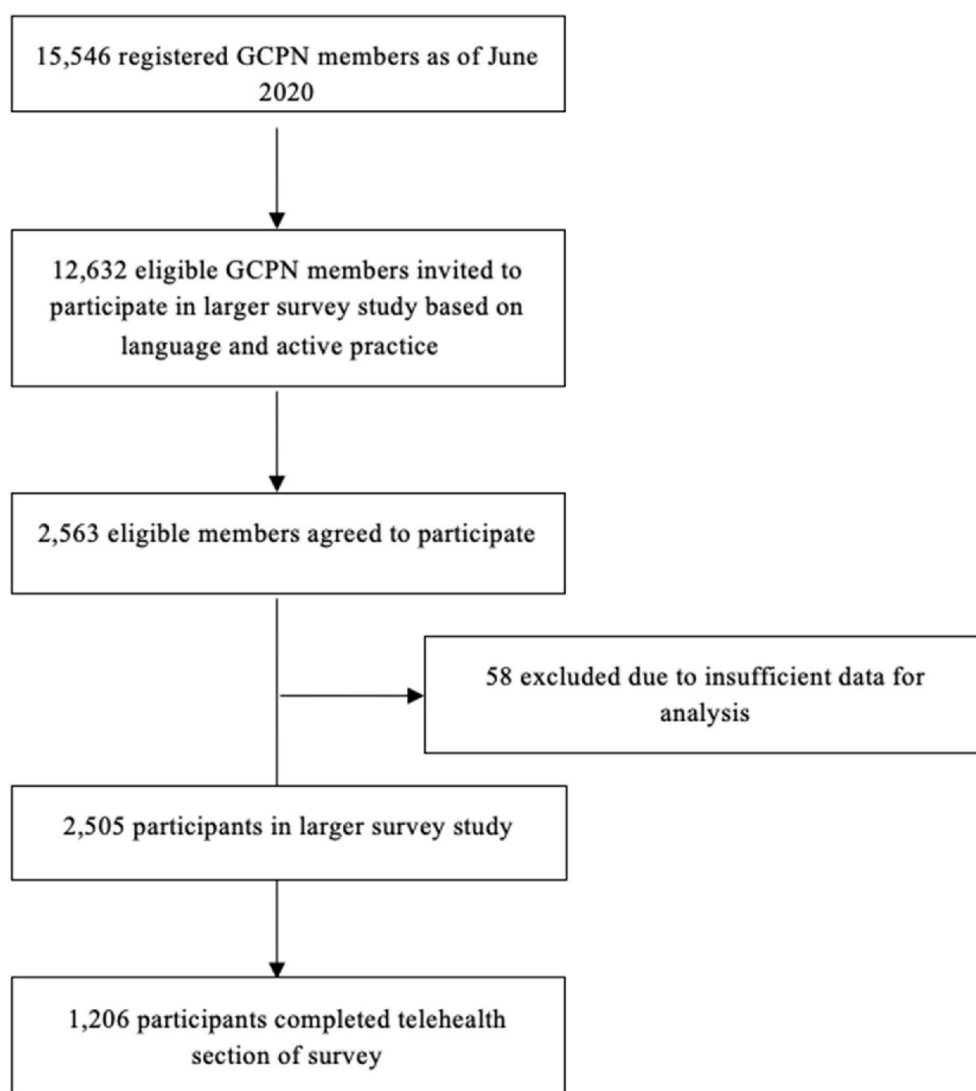


Fig. 2. Participant recruitment.

email  $\chi^2(7) = 38.29, p < .001$  (Fig. 3). Most notably, clinicians from the Americas-South reported a significantly lower proportion of telephone use (64%) compared to clinicians from the Americas-North ( $z = -3.85, p < .01$ ), Europe ( $z = -4.39, p < .001$ ), and Western Pacific-Asia ( $z = -4.26, p < .001$ ). Conversely, the Americas-South reported significantly higher proportions of videoconferencing use (88.9%) compared to Africa ( $z = 7.12, p < .001$ ), Eastern Mediterranean ( $z = 5.18, p < .001$ ), Europe (AMRO-South:  $z = 4.08, p < .001$ ), and Western Pacific-Asia ( $z = 11.48, p < .001$ ). South-East Asia reported significantly higher proportions of chat or instant messaging use (65.2%) compared to the Americas-North ( $z = 6.23, p < .001$ ), Europe ( $z = 5.06, p < .001$ ), and Western Pacific-Asia ( $z = 5.62, p < .001$ ). When examining telehealth tools use by country income level, participants from low-income countries reported the highest proportion of chat or instant messaging use at 80% whereas participants from high-income countries indicated the lowest proportion of chat or instant messaging use at 22.5% with telephone (82%) and videoconferencing (72.1%) use as the more common modalities.

The majority of clinicians (56%) reported having been provided with a secure platform to provide telehealth services by their institution (33.9% were not provided with one and 10.1% did not know), which differed significantly based on country income level ( $\chi^2(6) = 71.78, p < .001$ ; high 65.1%, upper-middle 41.8%, lower-middle 38.7%, and low 30%). The Americas-North had the highest percentage of clinicians

(78.4%) having been provided with a secure platform by their institution followed by Western Pacific-Oceania (76.7%). Conversely, African clinicians reported the lowest percentage (22.3%).

### 2.3. Telehealth training

Overall, 49.1% of mental health professionals had not received any training on telehealth service delivery. The total number of components of telehealth service delivery covered during training was generated for each clinician and examined by WHO region (Fig. 4). Number of training components received varied by WHO region ( $\chi^2(21) = 171.17, p < .001$ ). Most notably, the percentage of clinicians from Americas-North who reported receiving training on all three components of telehealth (44.7%) was significantly higher compared to other regions except for Western Pacific Oceania (36.7%,  $z = 0.83, p = .407$ ) and South-East Asia (27.3%,  $z = 2.51, p = .338$ ). There was no association found between country income level and total components of telehealth training received ( $\chi^2(9) = 11.91, p = .217$ ).

A sequential logistic regression model (Table 2) examined predictors of clinicians' perceived telehealth effectiveness based on demographic variables and telehealth training received (none, one, two, or three components). The final regression model with telehealth training, compared to a model that included only demographic variables, significantly improved the fit between model and data ( $\chi^2(33, N =$

**Table 1**  
Telehealth participant demographics.

WHO global region, N (%)	
Africa	31 (2.6)
Americas-South	199 (16.5)
Americas-North <sup>a</sup>	208 (17.2)
Eastern Mediterranean	35 (2.9)
Europe	475 (39.4)
South-East Asia	66 (5.5)
Western Pacific-Asia <sup>b</sup>	162 (13.4)
Western Pacific-Oceania <sup>c</sup>	30 (2.5)
Gender, N (%)	
Female	652 (54.1)
Male	550 (45.6)
Other	4 (.3)
Language, N (%)	
Chinese	42 (3.5)
English	646 (53.6)
French	73 (6.1)
Japanese	103 (8.5)
Russian	89 (7.4)
Spanish	253 (21)
Income level, N (%)	
Low	10 (.8)
Lower-middle	124 (10.3)
Upper-middle	318 (26.4)
High	754 (62.5)
Profession, N (%)	
Psychiatrist	456 (37.8)
Psychologist	554 (45.9)
Other <sup>d</sup>	196 (16.3)
Age, M (SD)	51.4 (11.4)
Years of experience, M (SD)	20.7 (10.4)

<sup>a</sup> Predominantly Canada and United States.

<sup>b</sup> Predominantly Japan and China.

<sup>c</sup> Predominantly Australia and New Zealand.

<sup>d</sup> Included mainly social workers, counselors, primary and other specialty physicians, occupational therapists, and nurses.

1189) = 146.62, Nagelkerke  $R^2 = 13.1$ ,  $p < .001$ ). Four predictors made significant unique contributions to the final model: age ( $\chi^2(3) = 8.43$ ,  $p = .038$ ); country income level ( $\chi^2(9) = 25.54$ ,  $p < .01$ ); profession ( $\chi^2(6) = 28.37$ ,  $p < .001$ ); and telehealth training ( $\chi^2(9) = 40.71$ ,  $p < .001$ ).

Greater age was associated with a lower likelihood of reporting somewhat ineffective (OR = 0.95, SE = 0.02,  $p < .01$ ) compared to very effective. Clinicians in lower-middle-income countries were more likely to report somewhat effective (OR = 2.53, SE = 0.27,  $p < .01$ ) than very effective compared to high-income countries. Psychiatrists were more likely than 'other' professionals to endorse somewhat effective (OR = 2.10, SE = 0.21,  $p < .01$ ) than very effective. Finally, participants who received no or one component of telehealth training were more likely to endorse somewhat ineffective (no training: OR = 3.38, SE = 0.34,  $p < .001$ ; one training component: OR = 3.63, SE = 0.39,  $p < .01$ ; two component: OR = 1.2, SE = 0.47,  $p = .698$ ) compared to very effective, than those who had received all three components of training.

Interactions between predictors with perceived effectiveness of telehealth as an outcome were examined and only the interaction between clinician age and total components of telehealth training received was significant ( $\chi^2(21) = 99.06$ ,  $p < .001$ ). However, when included in the final regression model (demographic variables and telehealth training), the addition of the interaction did not significantly improve the fit of the model.

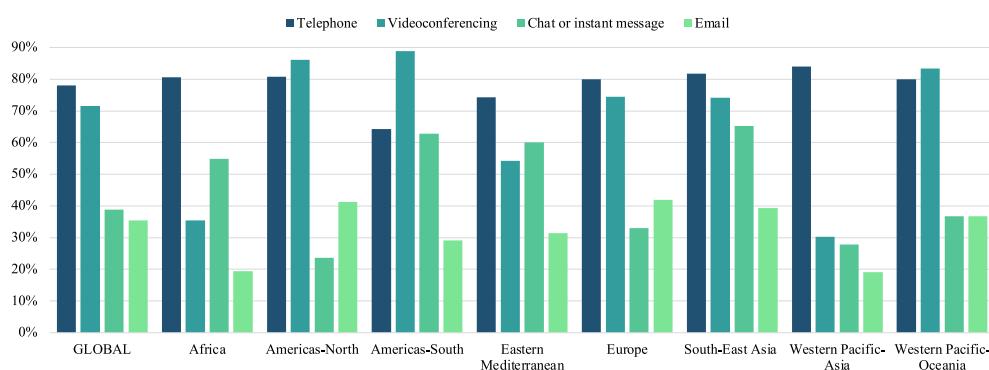
78.3% of those with telehealth training indicated that it adequately prepared them for their current telehealth activities. A binomial logistic regression model examining perceived preparedness for current telehealth activities as outcome and number of training components received and demographic variables as predictors was statistically significant ( $\chi^2(10, N = 606) = 65.83$ , Nagelkerke  $R^2 = 0.16$ ,  $p < .001$ ). Of the six predictor variables, only breadth of training received was statistically significant. Participants who reported receiving training on one or two aspects of telehealth were nearly 50–85% less likely to report that their training had adequately prepared them for telehealth activities compared to those that received training on all three aspects of telehealth service delivery (one component: OR = 0.15, SE = 0.28,  $p < .001$ ; two components: OR = 0.49, SE = 0.31,  $p = .022$ ). Fig. 5 shows comparisons across telehealth factors by profession.

#### 2.4. Concerns, effectiveness and satisfaction with telehealth

Concerns about telehealth services endorsed by at least 40% of the sample are outlined in Table 3. Among psychiatrists, 48.3% indicated being concerned about providing prescriptions remotely. Overall, reported perceived effectiveness of telehealth was 49.7% somewhat effective and 35.4% very effective. The Americas (North and South) had the highest proportions of participants endorsing very effective (54.9% and 55.9%, respectively), whereas Western Pacific-Asia had the highest proportion of participants endorsing somewhat ineffective (23%). Fig. 1 shows clinicians' perceived effectiveness of telehealth relative to in-person services for specific patient populations. Lastly, most respondents reported that they believed that patients were satisfied (61.9%) or very satisfied (12.3%) with telehealth services.

### 3. Discussion

The current article presents the results of an international, multi-lingual survey examining the impact of the COVID-19 pandemic on the use of telehealth among mental health professionals including concerns, barriers and facilitators to adoption and delivery. Results generally supported the hypotheses as a substantial majority of respondents transitioned to telehealth and their use varied by WHO region, country income level and profession. Moreover, training was identified as a facilitator to telehealth use. Most clinicians indicated positive perceptions about their provision of telehealth services with identified barriers including technical issues and concerns about effectiveness compared to in-person services.



**Fig. 3.** Telehealth modalities used to deliver services to patients during the past two weeks by WHO region.

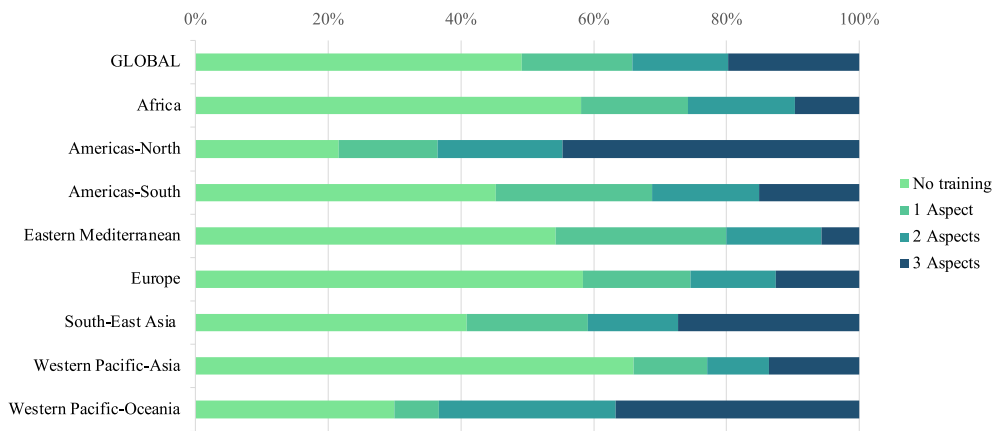


Fig. 4. Training received on specific aspects of telehealth service delivery (i.e. technological, ethical and legal, and clinical) by WHO region.

**Table 2**  
Sequential logistic regression of perceived effectiveness using telehealth for clinical services.

Predictor	Model 1 (Demographic Variables only)						Model 2(Telehealth Training Variable added)					
	Very Ineffective (n = 64)		Somewhat Ineffective (n = 114)		Somewhat Effective (n = 590)		Very Ineffective (n = 64)		Somewhat Ineffective (n = 114)		Somewhat Effective (n = 590)	
	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
Age	.99	.021	.96**	.02	.98*	.01	.99	.02	.95**	.02	.98	.01
Years of Experience	1.01	.022	1.02	.02	.97	.01	1.01	.02	1.02	.02	.99	.01
Income level <sup>a</sup>												
Low	7.08	1.44	2.97	1.45	4.66	1.08	6.93	1.44	2.57	1.46	4.27	1.09
Lower-middle	1.06	.58	1.45	.39	2.38**	.27	1.09	.59	1.56	.39	2.53***	.27
Upper-middle	.79	.34	.67	.27	.78	.16	.77	.34	.65	.27	.76	.16
Profession <sup>b</sup>												
Psychiatrist	1.17	.38	2.14*	.32	2.37***	.21	1.10	.39	1.86	.33	2.10***	.21
Psychologist	.58	.35	.59	.32	1.30	.19	.59	.35	.62	.33	1.33	.20
Gender <sup>c</sup> (male)	.99	.29	1.45	.23	1.03	.14	.98	.30	1.51	.24	1.05	.14
Training <sup>d</sup>												
None							1.30	.33	3.38***	.34	2.38***	.18
1 Component							1.10	.44	3.63**	.39	2.03**	.22
2 Components							.48	.53	1.20	.47	1.42	.22

Note: Reference Group = Very Effective (n = 421).

\*p < .05. \*\*p < .01. \*\*\*p < .001.

<sup>a</sup> = High income level as reference.

<sup>b</sup> = Other Profession as reference.

<sup>c</sup> = Female as reference.

<sup>d</sup> = Three components of telehealth training as reference.

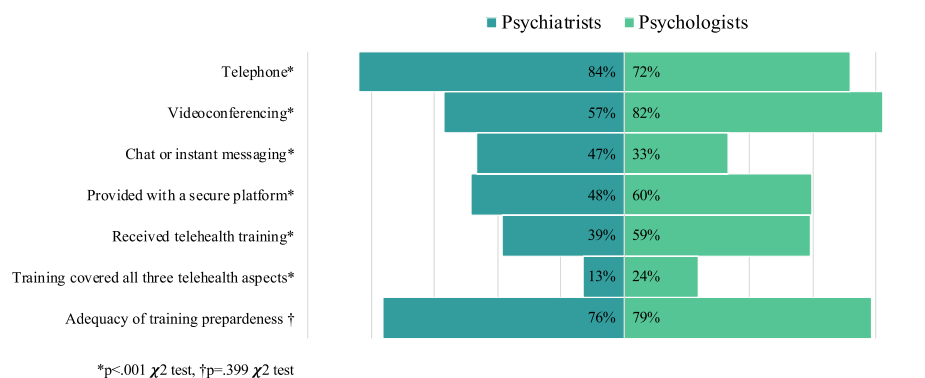


Fig. 5. Comparing telehealth use and factors related to its adoption by profession.

### 3.1. Use of telehealth: practice change due to the COVID-19 pandemic

Since the COVID-19 pandemic onset, 90.5% of respondents started or

increased their use of telehealth for clinical services while 86.6% did so for clinical supervision. This rapid adoption is consistent with survey data of US psychologists (Pierce et al., 2020b) and WHO mental health

**Table 3**

Most common concerns about providing telehealth services.

	N (%)
Quality of care relative to in-person services	809 (67.8)
Technical issues	806 (67.6)
Assessing of high-risk patients and managing emergencies remotely	664 (55.7)
Remote assessment of patients	648 (54.3)
Patients' access to equipment	647 (54.2)
Patient consent, privacy, security, and confidentiality	563 (47.2)
Patient familiarity with connecting to teleconference sessions and managing session controls	486 (40.7)

focal points (World Health Organization, 2020). Findings revealed that mental health professionals were using a variety of modalities, most often telephone and videoconferencing, which varied by WHO region and country income level. Clinicians from the Americas and Western Pacific-Oceania reported higher levels of videoconferencing use whereas clinicians from Western Pacific-Asia and Africa reported the lowest. Use of chat or instant messaging was highest among clinicians from the South-East Asia, Americas-South, and Eastern Mediterranean regions. Factors accounting for these differences are likely multifaceted. When examined by country income, participants from low-income countries indicated the highest use of chat or instant messaging, and conversely, participants from high-income countries reported the lowest, with more frequent use of telephone or videoconferencing. Reduced access to stable secure internet may explain the greater use of modalities that require less bandwidth, such as chat and instant messaging, rather than videoconferencing.

Platform security also varied significantly by WHO region and country income. Respondents from higher income countries were more likely to indicate being provided with a secure platform by their institution. Americas-North and Western Pacific-Oceania had the highest proportion of clinicians with a secure platform and Africa had the lowest. Most practitioners were providing telehealth services across a variety of modalities, however, clinicians from regions or countries using more videoconferencing were also those with secure platforms. Future research should explore whether greater access to stable internet and a secure platform for telehealth delivery would increase videoconferencing use in lower income countries and impact effectiveness.

### 3.2. Telehealth training

Findings indicated that 49.1% of mental health professionals had not received any form of telehealth training. Only 19.8% of respondents had received training that addressed all three aspects of telehealth provision. These results suggest that globally, many clinicians started offering telehealth services without having first received any training. It is likely that there was insufficient time or resources to organize training for some regions without previous telehealth experience. However, emerging guidelines have stressed the importance of adequate training for developing telehealth competencies during and after the COVID-19 pandemic (Alqahtani et al., 2021; Smith et al., 2020). Lack of training may affect quality of mental health services due to, for example, accidental breaches in confidentiality, increased technological difficulties, or unfamiliarity with available research and guidelines.

Training varied by WHO region with clinicians from Americas-North indicating the highest proportion with training that addressed all three components whereas Western Pacific-Asia had the greatest percentage of clinicians with no training. Country income level was not associated with the number of telehealth aspects covered. These findings imply that regions may have differed with respect to availability of training

material in the local languages or training expectations and focus (e.g. Pollard et al., 2017). WHO regions with the highest percentage of clinicians with all three components of training may have been more easily able to direct resources toward training or may have already had existing infrastructure and training available.

Our findings revealed that clinicians who received no training or training that only addressed a single aspect of telehealth practice were significantly more likely to perceive their telehealth services as somewhat ineffective than those who received training on two or more aspects. Likewise, among clinicians with training, those who had received training that did not address all three aspects were significantly less likely to report that the training had adequately prepared them for their telehealth activities. These findings are consistent with research indicating mental health professionals' broad telehealth training needs and interests (Glueckauf et al., 2018; Perle et al., 2014). Nonetheless, most respondents with any form of training (78.3%) reported that it had provided adequate preparation suggesting that clinicians found value in their available training. A survey of US psychologists assessing pandemic-related practice changes found that increased training was associated with increased telehealth use (Pierce et al., 2020b). The current results expand on this finding by suggesting that training is associated with clinicians' perceptions of effective telehealth delivery and preparedness.

### 3.3. Differences by clinical profession

The finding that psychiatrists were more likely than other professionals to perceive their telehealth services as somewhat effective, rather than very effective, may be due to numerous reasons including severity of patient population or the type of work psychiatrists conduct over telehealth including issues with physical examinations (Cowan et al., 2019) and providing remote prescriptions (Cowan et al., 2019; Wagnild et al., 2006). Policies and suitability of telehealth modality (i.e., telephone and instant messaging for psychiatric consultations and videoconferencing for psychological interventions) may contribute to the differences (Fig. 5).

### 3.4. Perceptions, concerns, and barriers

Overall, most mental health professionals believed that they were providing effective telehealth services and that their patients were satisfied with the telehealth services they received. This is an encouraging finding and consistent with previous studies demonstrating high patient and provider satisfaction with telehealth services (Hubley et al., 2016). Respondents in the Americas reported the greatest proportion perceiving their provision of telehealth services as very effective, whereas Western Pacific-Asia had the greatest proportion perceiving their services as ineffective. Numerous factors likely contribute to this finding including differences in telehealth modality used (i.e., less videoconferencing), availability of organizational telehealth supports, and the differential evolution of the pandemic affecting demand on mental health resources across regions.

Older clinicians and those from high-income countries, were more likely to report an improved likelihood of perceived effectiveness. Previous research among US psychologists had not found age to be associated with telepsychology use (Pierce et al., 2020a; 2020b). However, the mean age of respondents was 51.4 years indicating a mid-to late-career sample. Reported infrastructural and technological barriers (Jefee-Bahloul, 2014) and a lack of regional guidelines (Adepoju, 2020) may explain the difference in perceived effectiveness across country income level.

The present study also explored whether perceived effectiveness of telehealth services varied by patient population. A higher proportion of clinicians who provided telehealth services for mood and anxiety disorders believed their services to be about the same as or more effective than in-person services compared to those who provided services for

psychotic disorders and substance use disorders. These findings are consistent with previous research on acceptance of telehealth by disorder (Perle et al., 2013) and highlights concerns about inferiority of clinical care despite positive evidence for various mental health disorders and patient populations (Ebert et al., 2018; Hubley et al., 2016; Varker et al., 2019) including psychotic disorders (Santesteban-Echarri et al., 2018). Lack of training on the available evidence supporting telehealth services for specific patient populations may have contributed to clinicians' perceptions. On the other hand, the particular needs of patients affected by psychotic disorders or substance use disorders may not be adequately addressed using telehealth.

Results suggested that clinicians' concerns with telehealth use are related to clinical and technological aspects of telehealth provision (Table 2), which is consistent with pre-pandemic research that identified treatment efficacy, technology-related difficulties (Connolly et al., 2020; Cowan et al., 2019; Perle et al., 2014), managing emergency situations (Glueckauf et al., 2018), and remote assessments (Cowan et al., 2019) as barriers to telehealth use. The literature also suggested that professional, legal and ethical issues were important concerns among mental health professionals (Cowan et al., 2019; Glueckauf et al., 2018; Perle et al., 2014). However, the most common ethical concern in the present sample centred on patient privacy and confidentiality. It is possible that whereas the availability of guidelines produced by local professional regulatory bodies during the pandemic has helped address some of clinicians' professional and legal concerns, there may be a need to provide more comprehensive guidance on patient privacy and confidentiality.

### 3.5. Limitations

Although the largest network of its kind, members of the GCPN are not necessarily representative of all mental health professionals, and thus, results may not be generalizable. Moreover, generalizability may also be limited by the criteria used to direct clinicians to complete either the telehealth or the occupational stressors/well-being section of the broader survey. This excluded the telehealth experience of clinicians who were also providing in-person services within institutions that were providing care to patients with COVID-19. Although telehealth training was examined in the current study, the duration, content, and quality of the telehealth training received was unknown. Likewise, the present survey did not capture the participants' amount of telehealth use across the various modalities. Telehealth effectiveness and satisfaction were also based on perceptions rather than objective measures.

## 4. Implications and future directions

The worldwide surge in telehealth use suggests that mental health professionals implemented telehealth practices with available resources in the context of the COVID-19 pandemic. Clinicians' beliefs about providing effective telehealth services with patient satisfaction indicates that providers see telehealth as a feasible and acceptable option for mental health care. Following implementation, clinicians' concerns focus on quality of patient care compared to in-person services and technical issues. Professional regulatory bodies should provide training opportunities in local languages that address clinical, ethical and legal, and technological aspects of telehealth. The development of local telehealth standards and guidelines are also important given the ongoing role of telehealth in meeting mental health care needs.

More research is needed to understand the telehealth experience from the perspective of patients. Interestingly, a recent national survey conducted by the Canadian Psychological Association (2020) found that 73% of Canadians reported that they preferred to receive in-person services, especially among older Canadians. However, the majority of respondents had no concerns about the use of technology to receive services. Future research should examine outcomes of telehealth delivery as this will help shape the future of telehealth.

Lastly, clinicians' experience of the COVID-19 pandemic was highly

variable and constantly evolving based on region and thus current responses reflect one time point amid this global crisis. Future international surveys conducted by this research group will aim to understand the longitudinal impact of the ongoing pandemic on the telehealth experience of mental health professionals.

## Data sharing

Data are available from Columbia University's Data Coordinating Center (DCC). Anonymized, group-level data can be provided, but not individual participant underlying results given that Global Clinical Practice Network (GCPN) members did not consent to having their data shared publicly. A data dictionary of available variables will be provided. Any requests will be reviewed by the GCPN research committee, including the corresponding author, and require a proposal outline and a signed data access agreement. Requests should be made to [gcpn@cugmhp.org](mailto:gcpn@cugmhp.org). Data will be available upon publication.

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